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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,730	02/18/2004	Tumay O. Tumer	NOVA-012-C	2086
28892	7590	06/10/2005	EXAMINER	
SNIDER & ASSOCIATES P. O. BOX 27613 WASHINGTON, DC 20038-7613			LE, DINH THANH	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/779,730

Applicant(s)

TUMER ET AL.

Examiner

DINH T. LE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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FINAL REJECTION

The rejection under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 670812 is withdrawn in view of the Terminal Disclaimed filed on 3/28/05.

Claim Rejections

Claim Rejections - 35 USC § 112

Claims 21-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claim 21, the recitation “the inputs” on line 6 and “the processed signal” on line 15 lacks antecedent basis. It is unclear where the “inputs” and “input signal” come from, how the amplifiers can process the signal, how the recitation “at least one input coupled to a plurality of amplifiers” on lines 3, “inputs” on line 6, and “at least one amplifier selected from amplifiers” on line 10 is read on the preferred embodiment. Insofar as understood, no such limitation is seen on the drawings. Also, it is unclear how the amplifier can be “selected” from the amplifiers on lines 10 since no means for performing the selecting function is recited in the claims.

In claim 25, the recitation “at least one of the said amplifiers” on line 1 is confusing because it is unclear if this is additional “at least one of the said amplifiers” or further recitation of the previously claimed “at least one of the said amplifiers” on line 3 of claim 21. The same is true for reciting “at least one channel” on line 3 and “an input signal” on line 4 of claim 35, Also,

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it is unclear how the at least one of the amplifiers can “share” the amplified signal since it generates the amplified signal as recited on line 13 of claim 21..

In claim 33, it is not understood how the circuit can connect an output of the peak hold “one at a time to an output”, and how this limitation is read on the preferred embodiment or seen on the drawings.

In claim 35, the recitation “said plurality of integrated circuit channel” lacks clear antecedent basis. The same is true for claims 36-37. It is unclear how the trigger signal can be “outputted” for at least one channel” .

In claim 36, the recitation “said readout signal” on line 3 lacks clear antecedent basis. The same is true for reciting “said input” in claim 40, “the said amplifier connected to said inputs” and “the signal” in claim 41, “said processed input signal” in claims 44-45, “the arrival time difference” in claim 46, “their components” on line 3, the settings” and “the information” of claim 47, “the channels and circuits” in claim 56.

In claim 39, the recitation “said output circuit system outputs a readout signal” is misdescriptive because it is inconsistent with what is recited in claim 21. For example, claim 21 recites on lines 20-21 that the system outputs said processed signals.

In claim 46, the description of the present invention is incomplete because the claimed circuitry is not connected to anything. Thus, the claimed circuitry may not perform the recited function. The same is true for reciting “digital circuits” in claim 55.

In claim 47, it is not understood what the “components” on line 3, “the settings” and “the information” are.

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In claim 49, it is not understood how the plurality comparators” can be “a single comparator”.

In claim 51, it is not understood what the “capability” is and how the circuit system can provide this capability.

In claim 52, it is unclear how the channels can be “selectively read out” since no selecting means is recited in the claim.

In claim 53, it is not understood what the “pole zero” is and where it comes from. The same is true for reciting “circuits” on line 2

In claim 55, it is unclear how the recitation “digital circuits” is read on the preferred embodiment. Insofar as understood, no such circuits are seen on the drawings.

In claim 56, it is not understood how the circuits can be built on “silicon” what the “processes, CMOS and BiMOS” are, how the processes can be used, and how this limitation is read on the preferred embodiment. The same is true for reciting “detector types, . . . Cdwo4” on lines 3-4 of claim 57.

The remaining claims are dependent from the above claims and therefore also considered indefinite.

Claim Rejections - 35 USC 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless B

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21, 24-27, 35-38, 40-43, 47, 51-52 and 54-57 are rejected under 35 USC 102 (b) as being anticipated by Tumer (US 5,943,388).

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Tumer discloses a readout circuit in Figures 2a-2b comprising:

- a means (17) for receiving one or more input signals;
- an amplifier (18) coupled said input for integrating said one or more input signals and outputting an amplified signal;
- a processing circuit (33) having a digital circuit (DAC for processing the said amplifier output ;
- a trigger circuit (19) for comparing the output signal from the element (33) with an external reference voltage from DAC (14) to trigger the counter (20, 21) when the magnitude of the output signal exceeds the reference voltage;
- a means (20, 21) for outputting said processed signals responsive said input signals.
- a control and setting circuit (23); and
- wherein said data outputting means outputs a readout signal for at least one channel of said plurality of integrated circuit channels.
- With regard to claim 55, the recitation "digital circuits" is read on circuits (39, 41).
- With regard to claim 57, the detector (17) is CdZnTe detector.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claim 56 is rejected under 35 USC 103 (a) as being unpatentable over Tumer (US 5,943,388) in view of Young (US 5,757,794).

Tumer discloses in Figures 2a-2b as read-out circuit comprising all of the limitations of the base claims as stated above but does not disclose that the channels and circuits are built onto silicon processes such as CMOS and BiCMOS. For example, Tumer discloses that his circuit is implemented on an IC (chip). Young teaches in Figure 3 a converter circuit (300) is fabricated using CMOS of silicon processing for providing high package density and the BiCMOS processes for faster operation, see lines 1-9, column 24. It would have been obvious to a person having skill in the art at the time he invention was made to employ the CMOS and BiCMOS processes of silicon as suggested by Young in the circuit of Tumer for the purpose of providing high package density with faster operation.

Response to Applicant's Arguments

The applicant argues that Tumer does not disclose a plurality of amplifiers” instead of an amplifier” and “a plurality of inputs”. The argument is not persuasive because the argument is based on unclear limitation as stated above. Thus, the limitation “amplifiers” and “inputs” as recited in claim 21 is not given any patentable weight.

Allowable Subject Matter

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Claims 22-23, 28-32, 33-34, 39, 44-46, 48-50, 53 and 58 are would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The claims are allowed because the prior art does not show a polarity switching circuit being connected to said amplifiers; the peak hold circuit and the comparators as combined in the claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DINH T. LE whose telephone number is (571) 272-1745. The examiner can normally be reached on Monday-Friday (8AM-7PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, TIMOTHY CALLAHAN can be reached at (571) 272-1740.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Dinh Le', with a long horizontal flourish extending to the right.

DINH LE
Primary Examiner